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All Around Us

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All Around Us

by WILLIAM C. BRIDCHAMPEL, EDITOR, *THE BIRD*

and WILLIAM C. GRAY, EDITOR, *THE BIRD*

WITH ILLUSTRATIONS BY

W. C. BRIDCHAMPEL

AND WILLIAM C. GRAY

W. J. GAGE & CO., Limited

LONDON

The illustrations for this book were made by the following artists: A. F. Hurford and Miriam Story Hurford (cover, pages 1, 46, 47, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60); Gregory Orloff (pages 41, 44, 45, 48, 49, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75); Dewey Proebsting (pages 29, 30, 31, 34, 35, 36, 37, 38, 39, 40, 42, 43); Walter A. Weber (pages 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28); and Milo Winter (pages 16, 17, 32, 33, 76, 77).

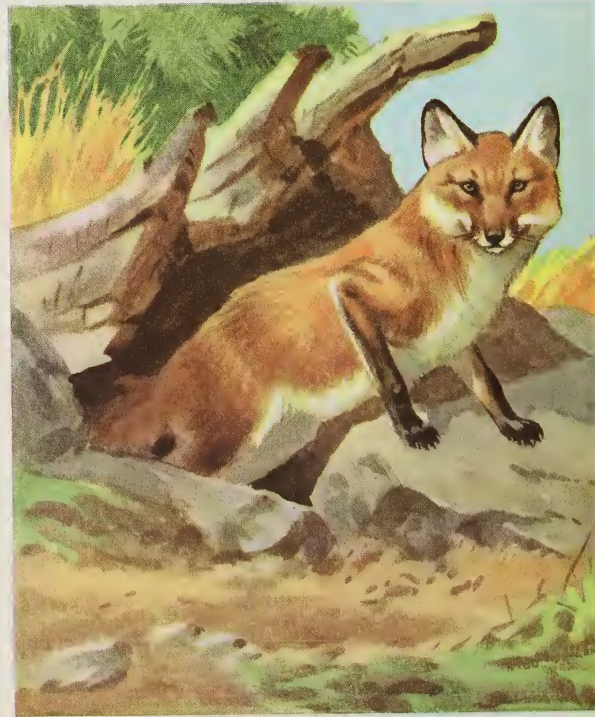
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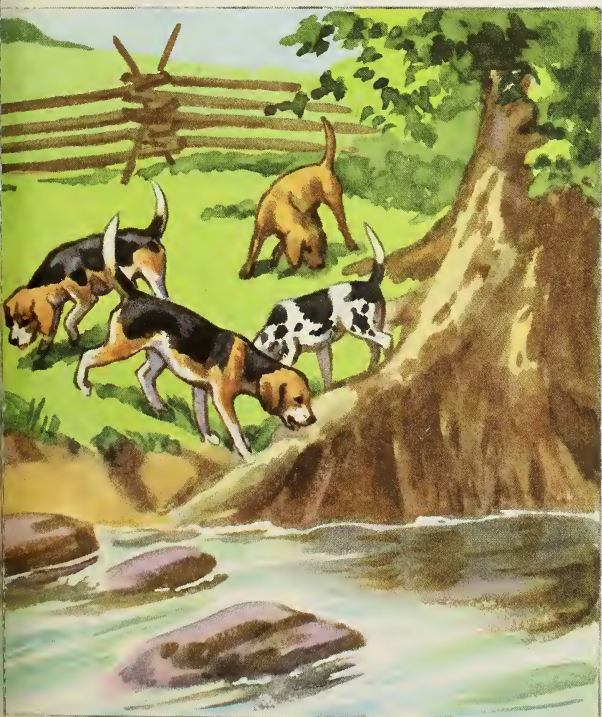
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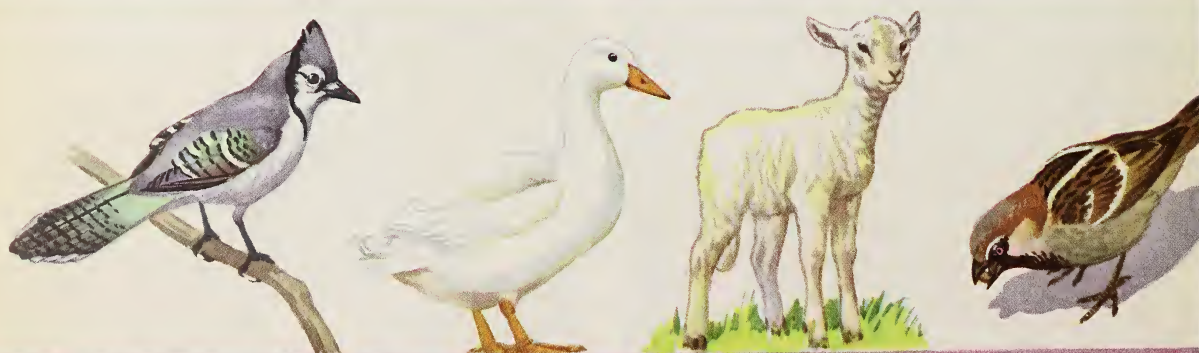
Animals



The Fox Family







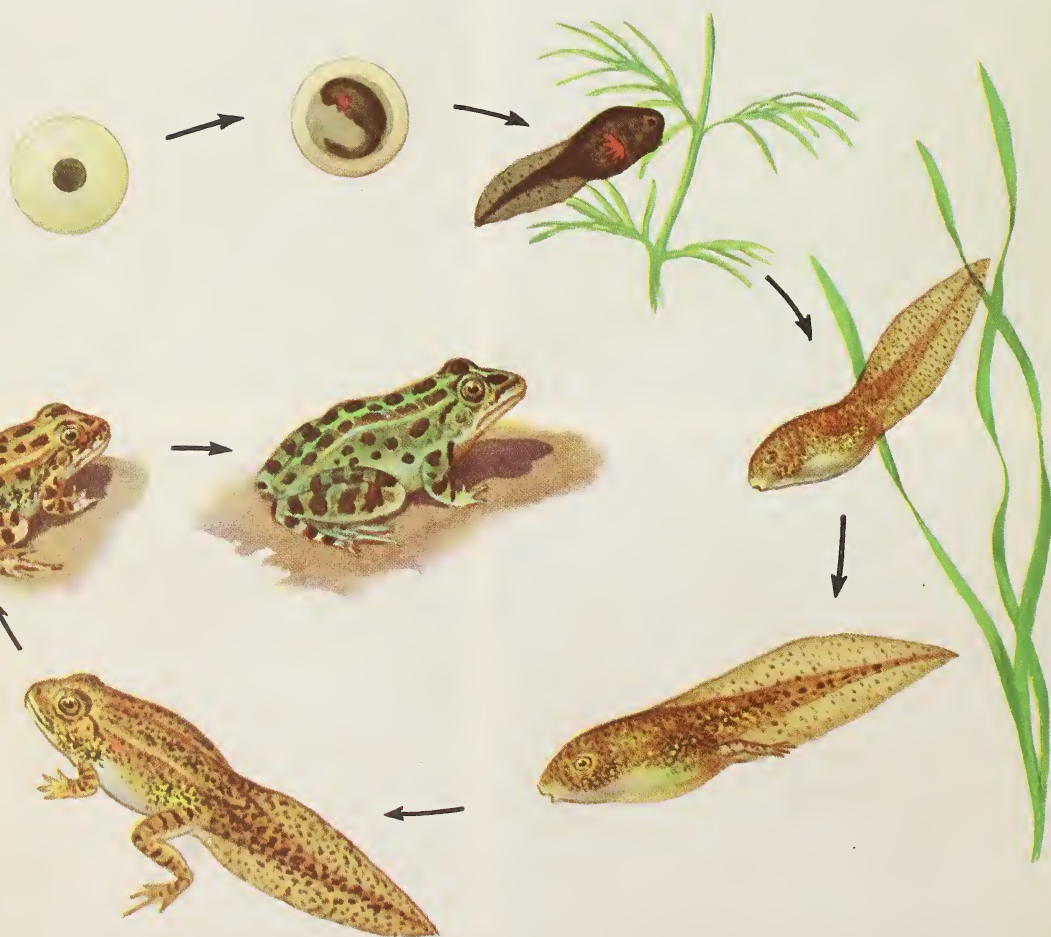




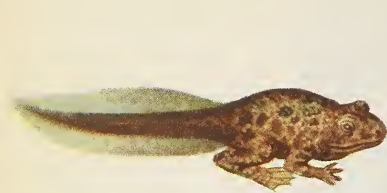


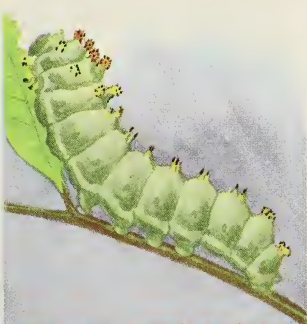












A Hungry Cat









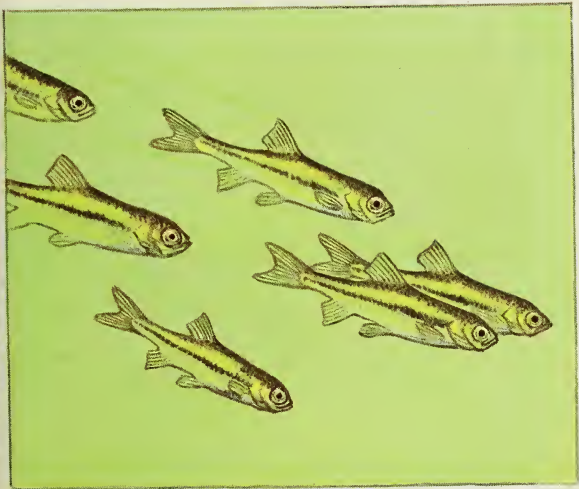
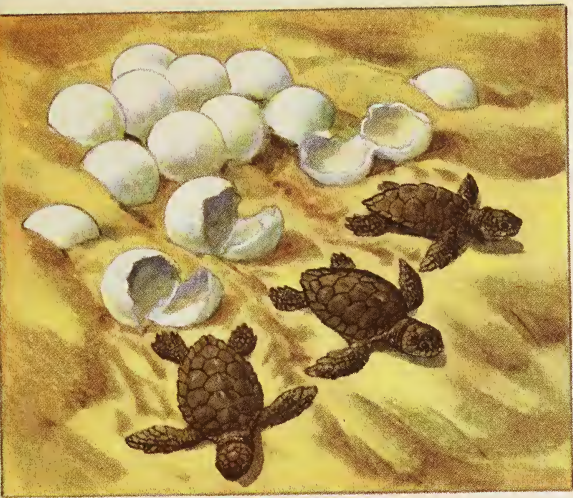
A Raccoon Protects Her Babies

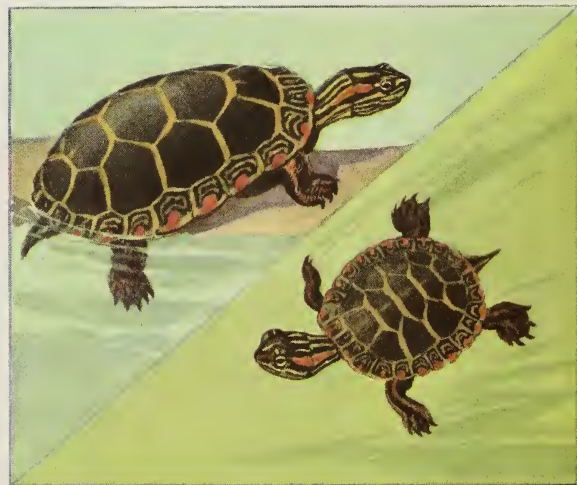
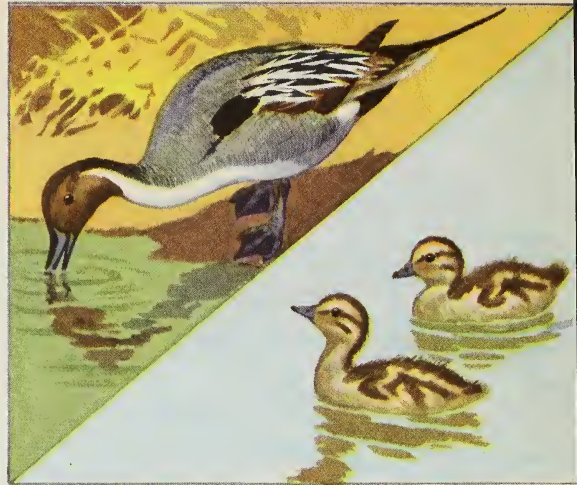


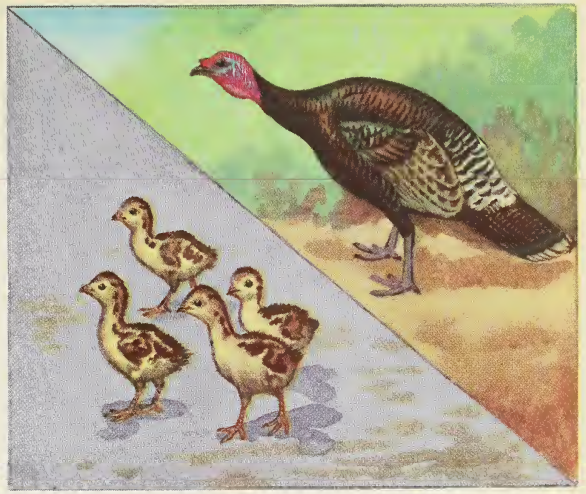
Geese Protect Their Babies







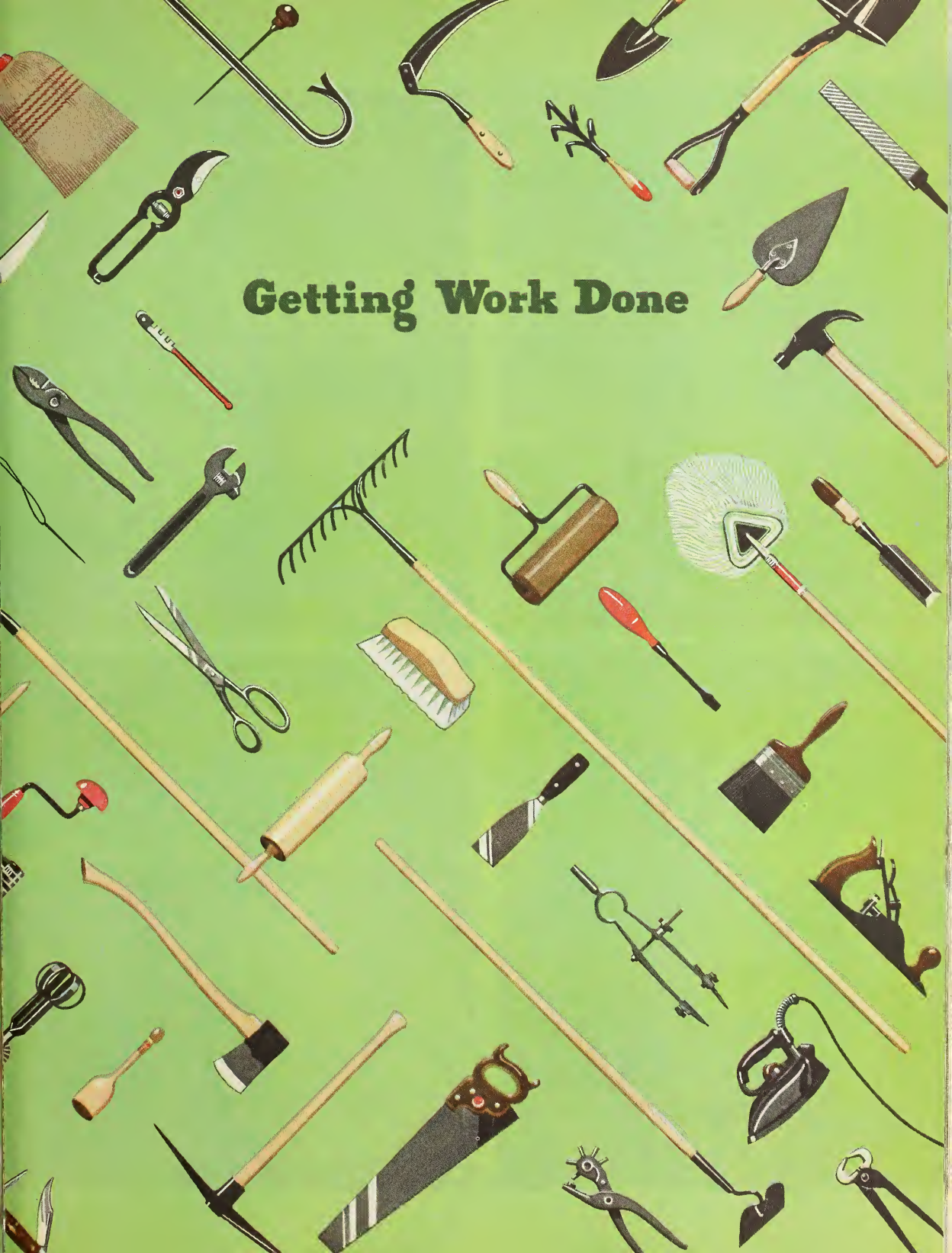












Getting Work Done

Stuck in the Mud





Muscles



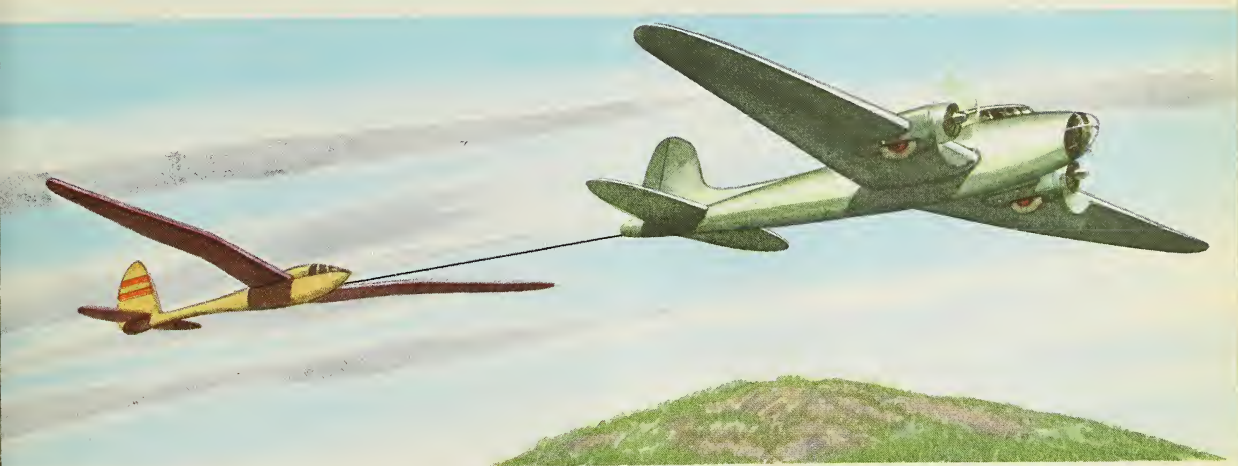
Machines and Muscles



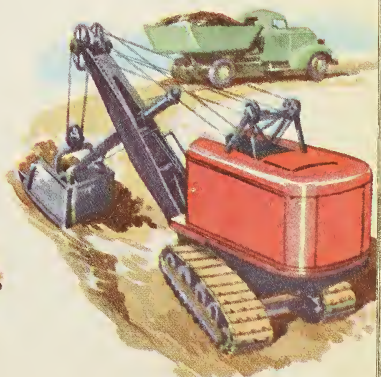
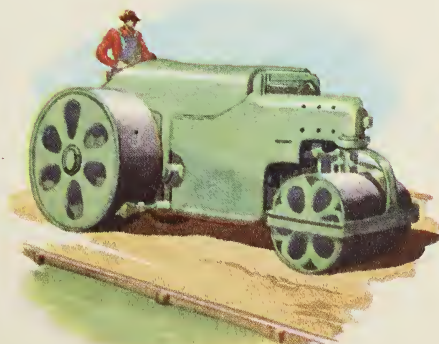
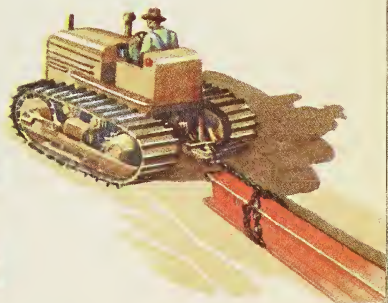
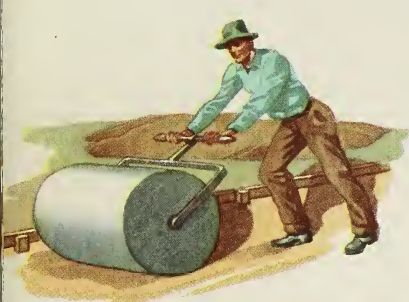
Machines and Animal Muscles



Machines and Motors

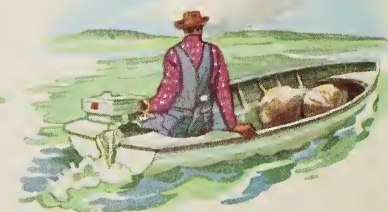
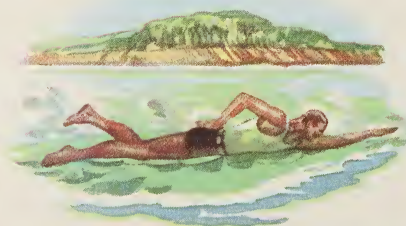
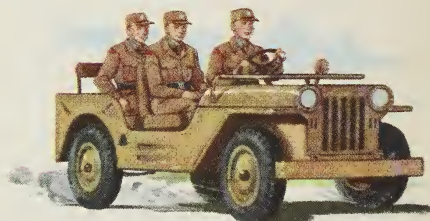
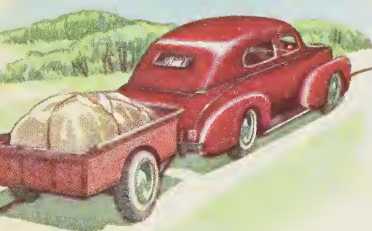
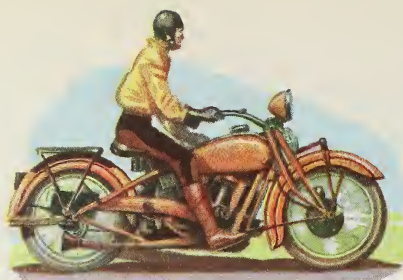




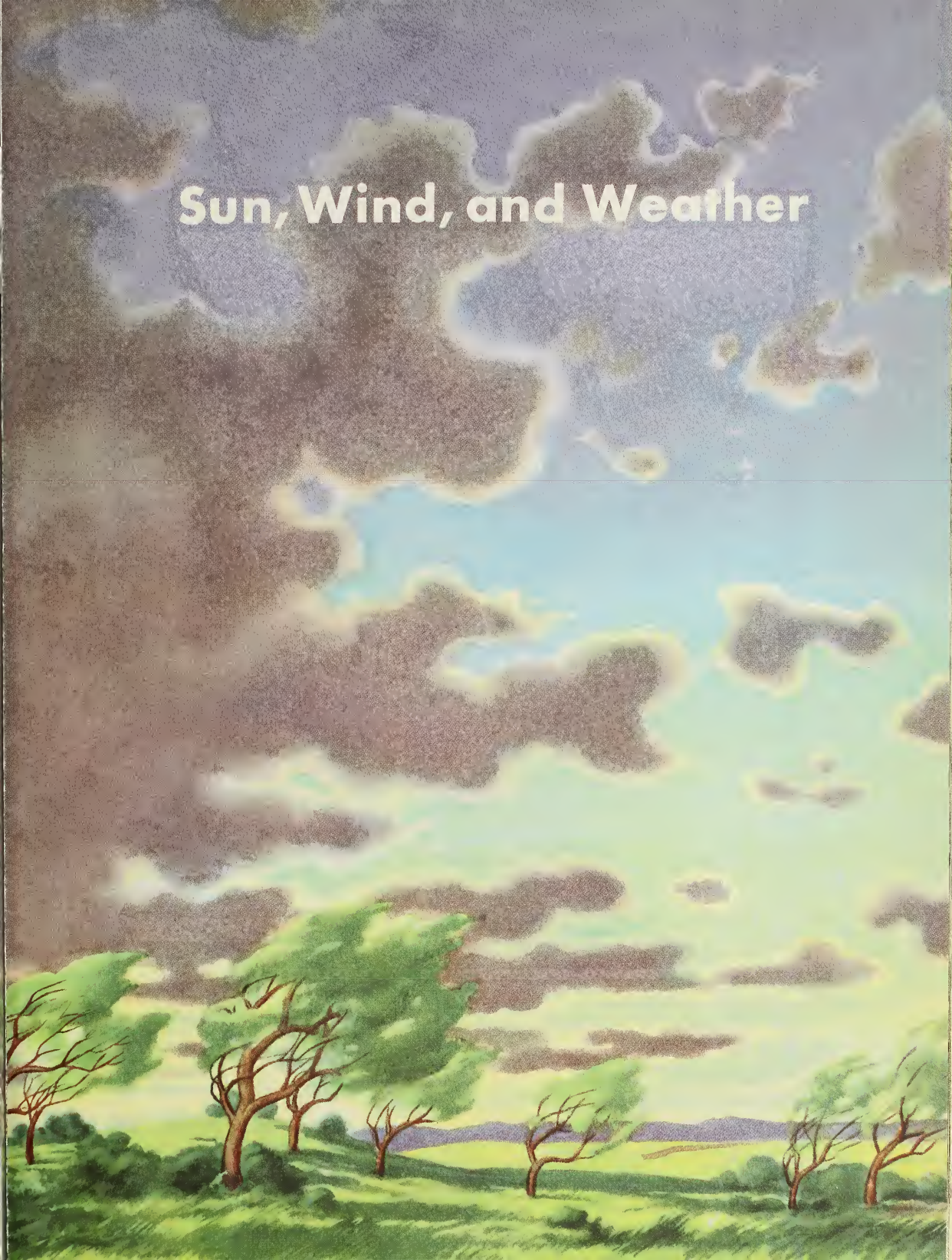






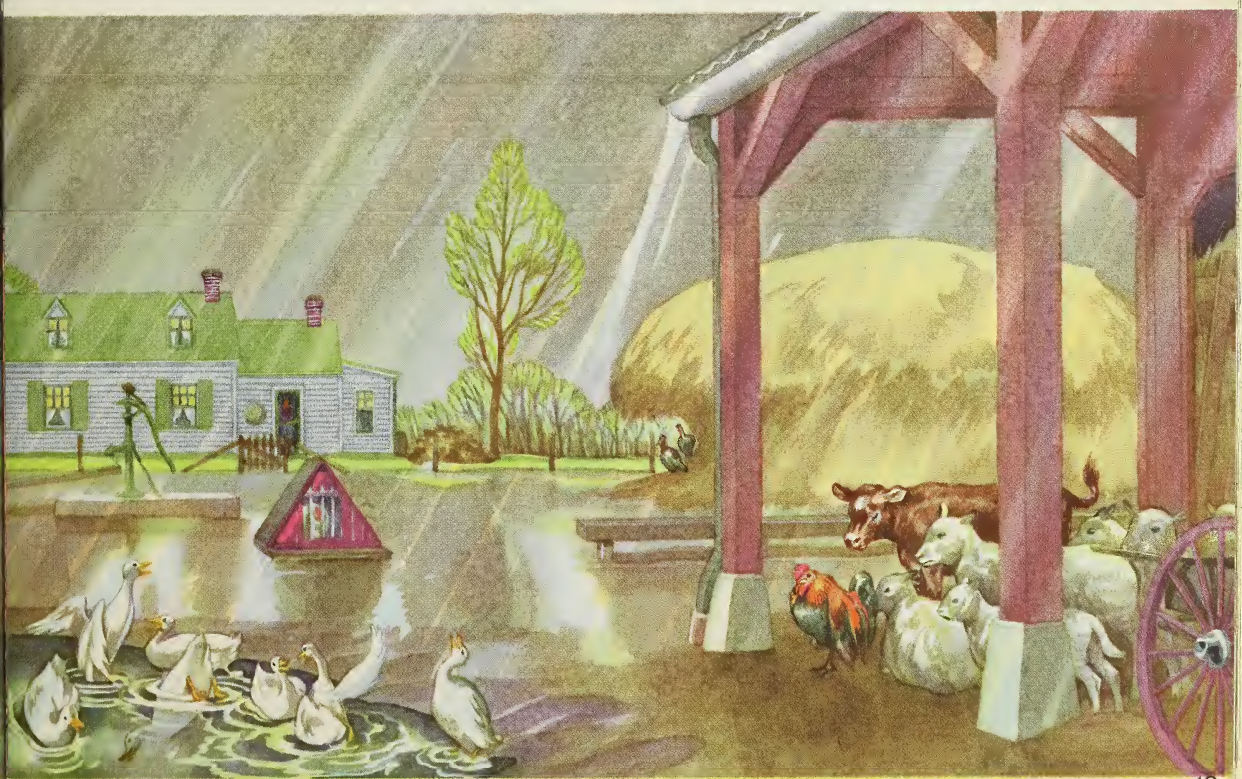


Sun, Wind, and Weather



A Day for Ducks





Sun Time



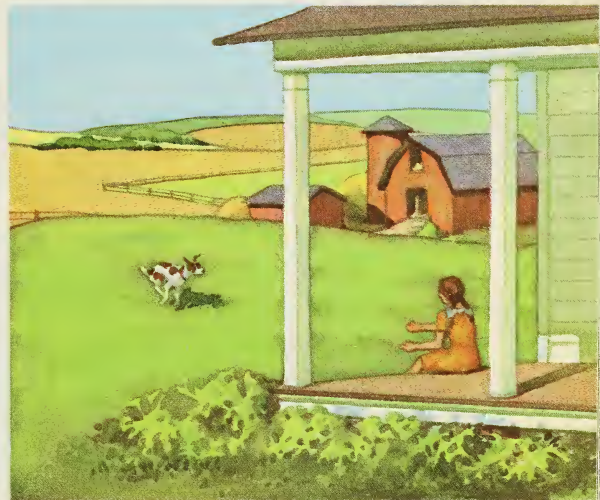
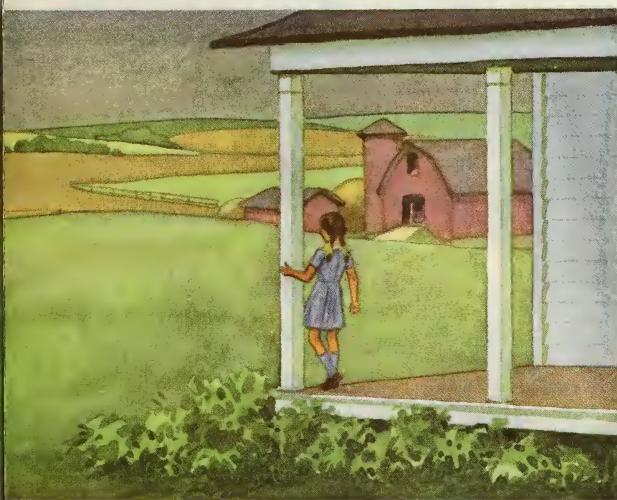
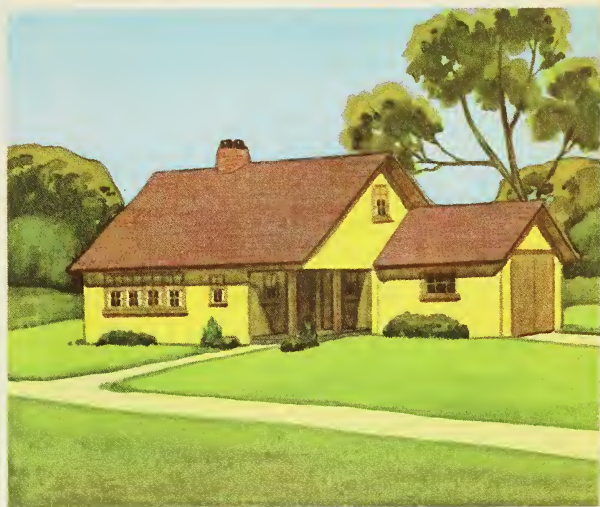
Do Shadows Help Tell Time?



On and Off



Which Is Warmer?

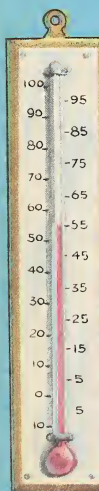
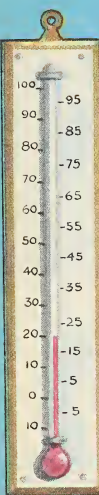
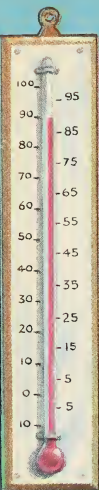


How Does a Thermometer Work?



What Will Happen?







Why?



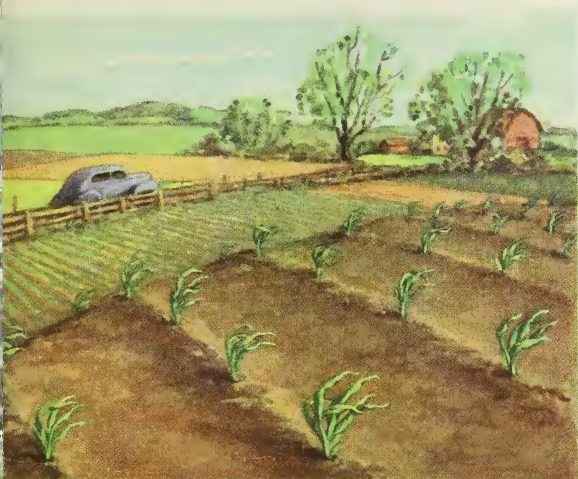
Why?



A Surprise



How Strong Is the Wind?

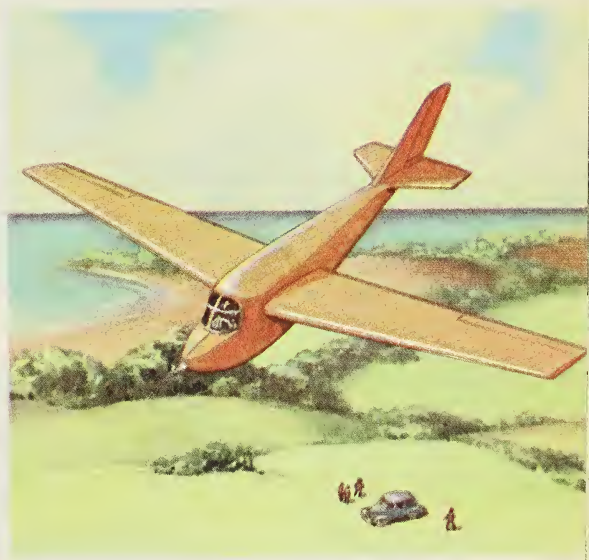


Wind is a helper



Wind is an enemy

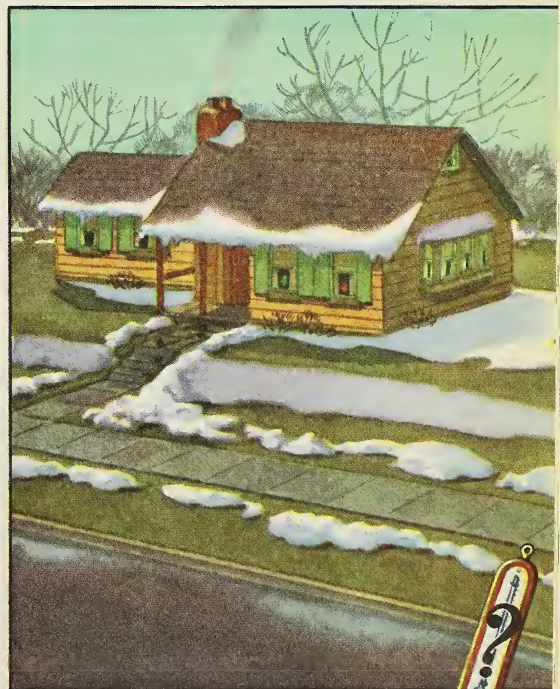
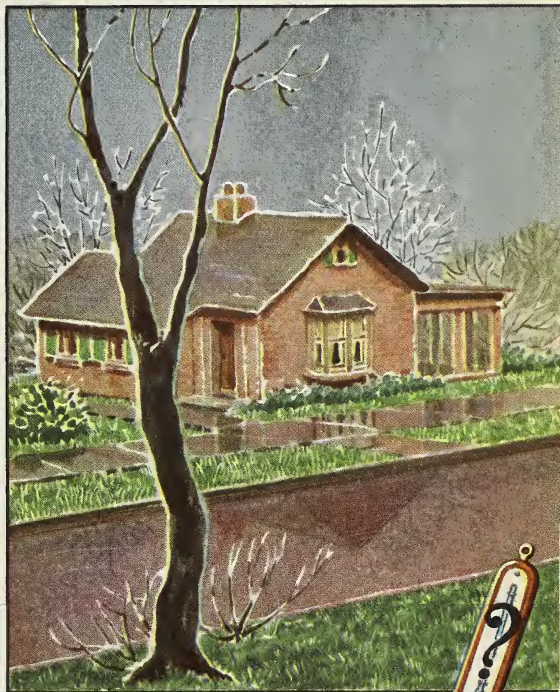


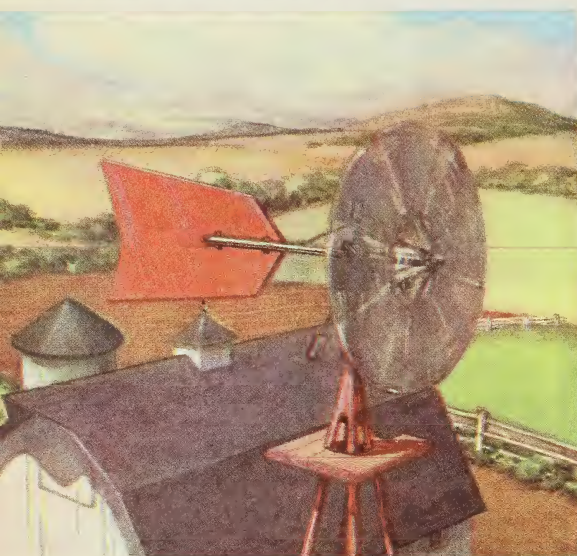
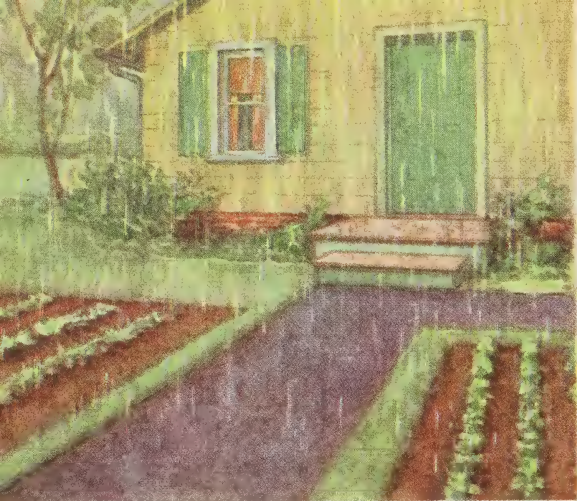


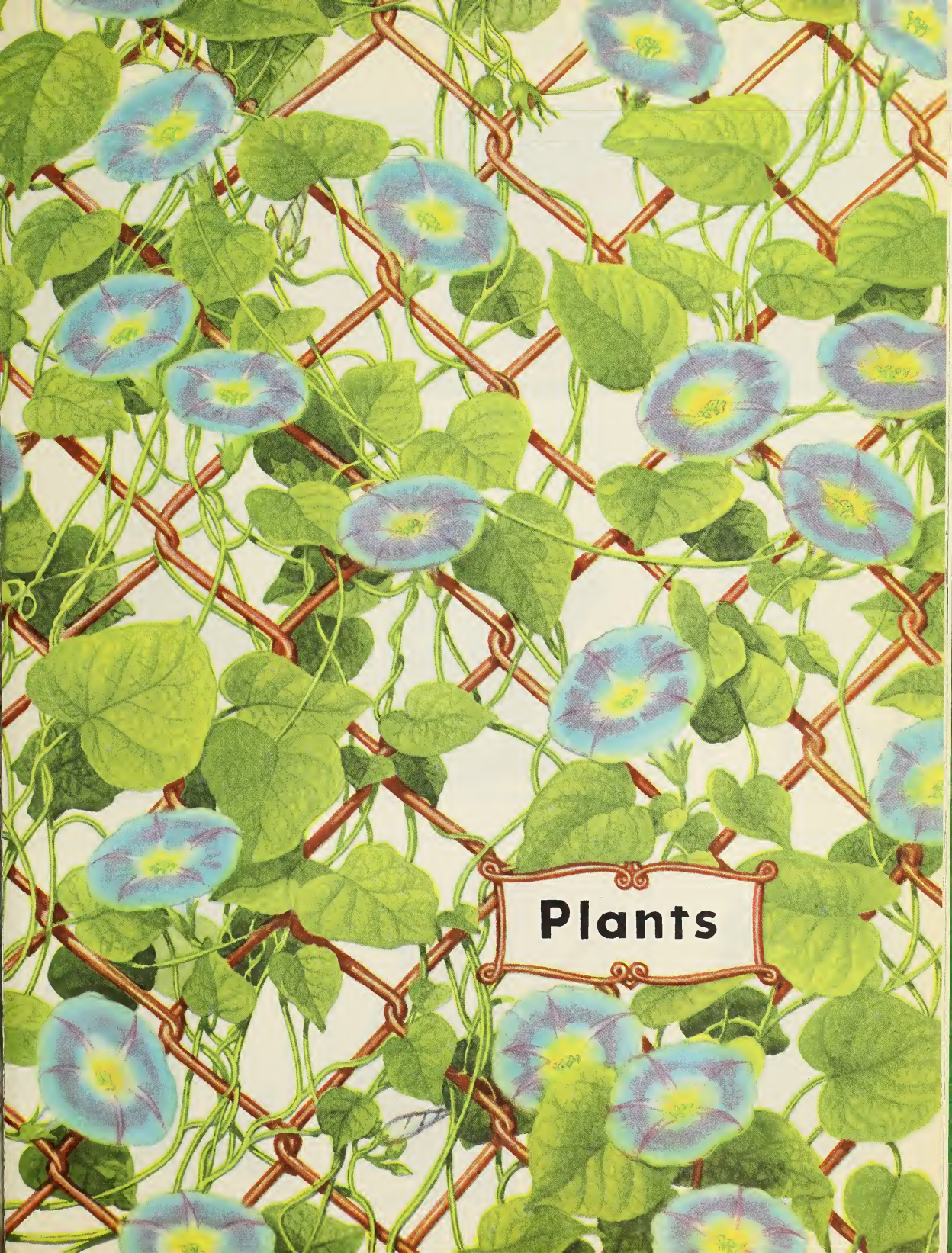
Storm Clouds



What Happened?

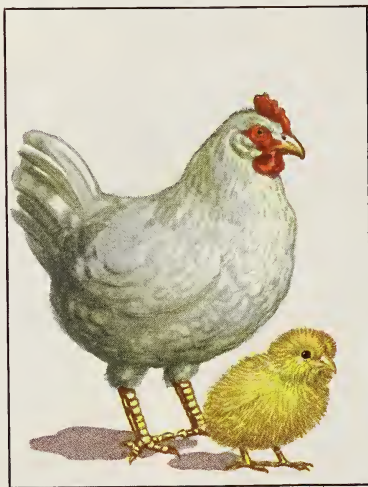
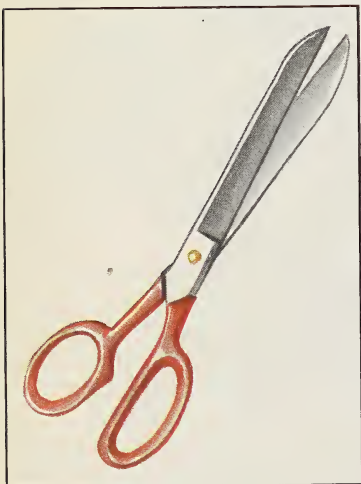
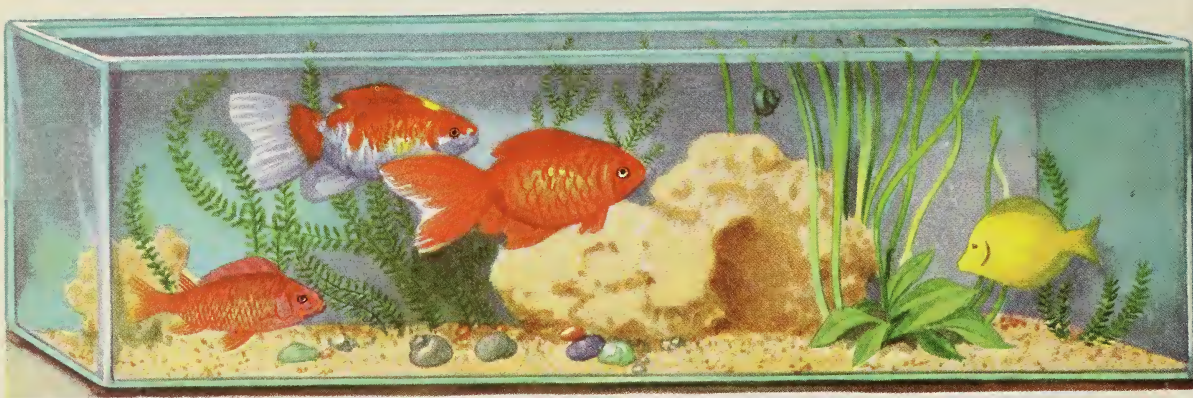


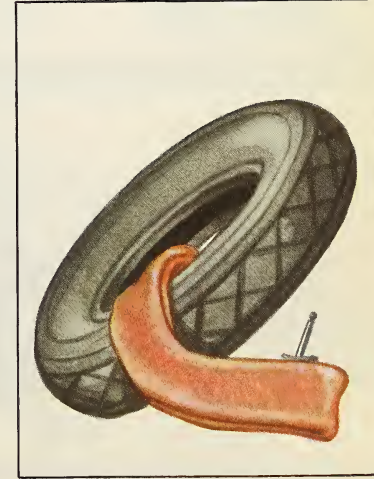
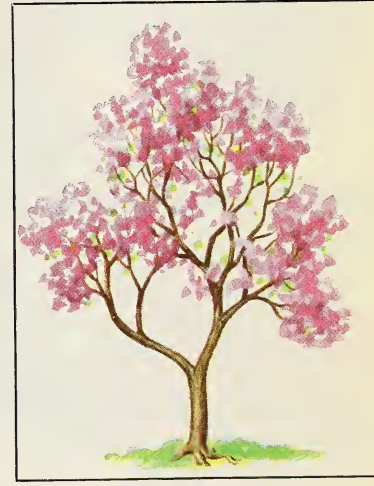
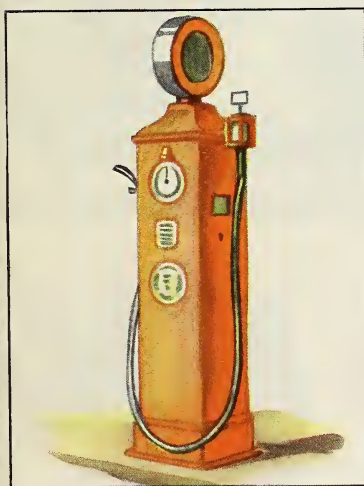
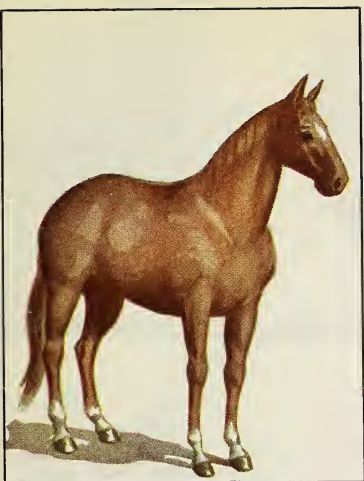




Plants

Which Ones Are Alive?







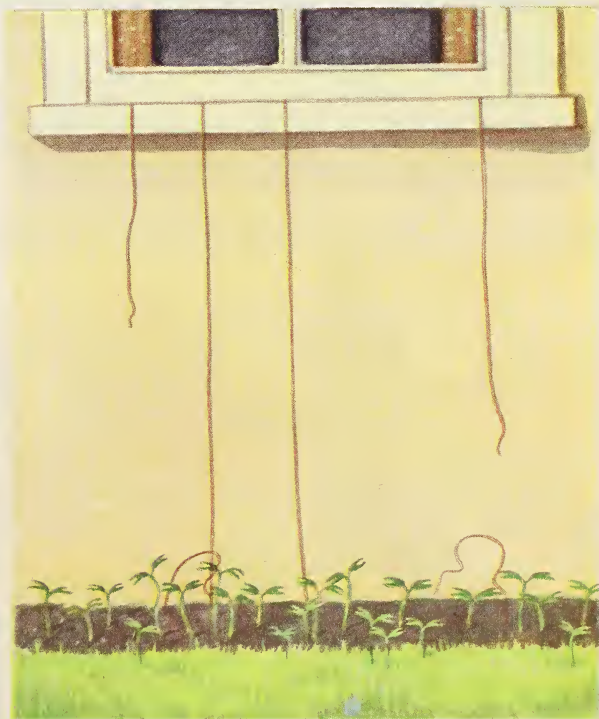
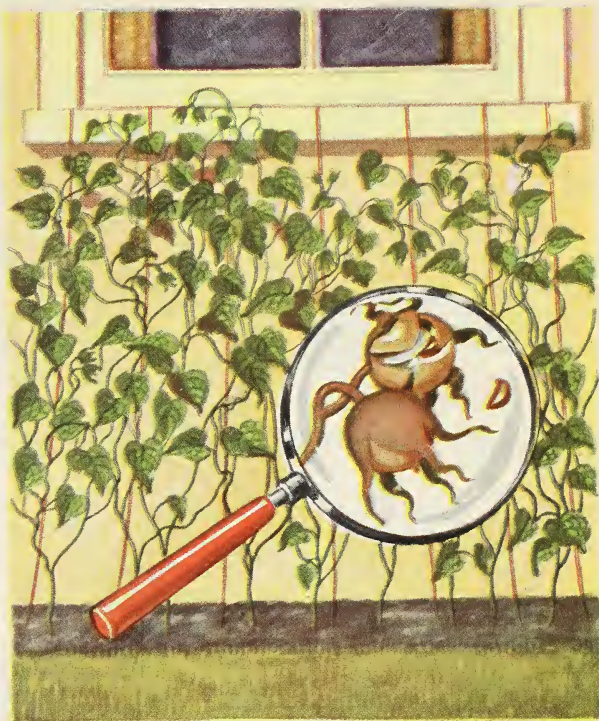


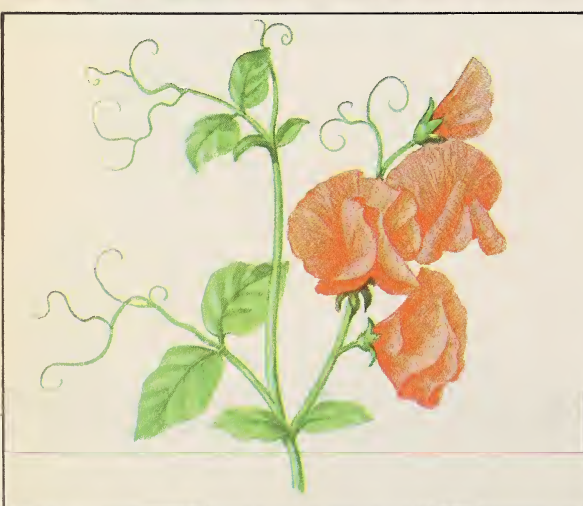




Plants Grow Up









How Seeds Are Scattered



Do Plants and Seeds Need Water?



Do Plants Need Light?





A Travelling Seed





Index to Concepts

Pages that promote readiness for a concept are printed in *italics* in the index. Pages that present developmental treatment of a concept are printed in **boldface**. Pages that provide for extension, enrichment, and application of concepts are printed in roman type.

UNIT I: Animals

- A. Animals may be classified into groups according to their general physical characteristics.
 - 1. Birds have certain common distinguishing characteristics. Pages **6**, 11, 14, 15, 18, 19, 21, 24-25, 26-27.
 - a. Their bodies are covered with feathers. Pages **6**, 11, 14, 15, 18, 19, 21, 24-25, 26-27.
 - b. They have two legs and two wings. Pages **6**, 11, 14, 15, 18, 19, 21, 24-25, 26-27.
 - 2. Insects have certain common distinguishing characteristics. Pages **7**, 13, 24-25, 26-27.
 - a. They have six legs. Pages **7**, 13, 24-25, 26-27.
 - b. They have two feelers or antennae. Pages **7**, 13, 24-25, 26-27.
 - 3. Mammals have certain common distinguishing characteristics. Pages 4-5, **10**, 15, 20, 24-25, 26-27, 28.
 - a. Mammals are born. Pages 4-5, **10**, 15, 20, 24-25, 26-27, 28.
 - b. Mammals have hair on their bodies. Pages 4-5, **10**, 15, 20, 24-25, 26-27, 28.
 - c. Baby mammals get milk from the mother's body. Pages 4-5, **10**, 15, 20, 24-25, 26-27, 28.
- B. Animals follow a definite pattern of growth.
 - 1. Some baby animals resemble the parents more than they resemble other animals. Pages 4-5, **8-9**, 10, 11, 14, 15, 18, 19, 20, 24-25, 26-27, 28.
 - 2. Baby animals that do not resemble the parents resemble them at maturity. Pages **12**, 13, 14, 15, 23, 26-27.
 - 3. Some animals are born. Pages 4-5, **10**, 15, 20, 24-25, 26-27, 28.
 - 4. Some animals are hatched. Pages **11**, 12, 13, 14, 15, 18, 19, 23, 26-27.
 - 5. Some animals pass through stages of structural change before maturity is reached. Pages **12**, 13, 14, 15, 23, 26-27.
 - 6. Animals change in their ability to do things as they grow older. Pages 4-5, **10**, 11, 12, 18, 20, 22, 24-25, 26-27, 28.
- C. Animals must have food to live and grow.
 - 1. Some baby animals eat the same kind of food as the parents. Pages **18**, 19, 21, 23, 24-25, 26-27.
 - 2. Baby mammals get milk from the mother's body. Pages 4-5, **10**, 15, 20, 24-25, 26-27, 28.
 - 3. The ability to move about is important in food getting. Pages 4-5, **10**, 11, 16-17, 18, 19, 20, 21, 23, 24-25, 26-27, 28.
 - 4. Baby animals differ in ability to get their own food. Pages **10**, 11, 18, **19**, 20, 21, 23, 24-25, 26-27, 28.
- D. Baby animals receive varying degrees of parental care and protection.
 - 1. Many baby animals get milk from the mother's body. Pages 4-5, **10**, 15, 20, 24-25, 26-27, 28.
 - 2. Most baby animals that cannot move about competently are fed by the parents. Pages 4-5, **10**, 11, 18, 20, 24-25, 26-27, 28.
 - 3. Many baby animals that cannot move about competently and cannot escape from enemies get protection from the parents. Pages 4-5, **10**, 11, 18, **19**, 20, 21, 22, 26-27, 28.
 - 4. Some baby animals get no parental protection. Pages **12**, 13, **23**, 24-25, 26-27.

UNIT II: Getting Work Done

- A. When things are moved, work is done.
 - 1. There are many ways of doing work. Pages 29, 30-31, **33**, 34, 35, 36-37, 38-39, 40.
 - 2. Machines enable us to use our energy more efficiently. Pages 29, 30-31, **33**, 34, 35, 36-37, 38-39, 40.
- B. We can move things with our own muscles.
 - 1. We can move things by pushing. Pages **32**, 33, 34, 35, 36-37, 38-39, 40.
 - 2. We can move things by pulling. Pages **32**, 33, 34, 36-37, 38-39, 40.
- C. We can use machines that we operate with our own muscles.
 - 1. Machines are devices we use to help us do our work. Pages 29, **33**, 34, 35, 36-37, 38-39, 40.
 - 2. We can use less force to do work if we use a machine. Pages 29, **33**, 34, 35, 36-37, 38-39, 40.
- D. We can move things with animals.
 - 1. We use the muscles of animals to save our energy. Pages 30-31, 32, **34**, 36-37, 38-39, 40.
 - 2. Many animals are stronger and can exert more force than man. Pages 30-31, 32, **34**, 36-37, 38-39, 40.
 - 3. Animals use their muscles to push and pull. Pages 30-31, **32**, 34, 36-37, 38-39, 40.
- E. We can move things with machines that have engines and motors.
 - 1. Many motors and engines have greater power than human beings or animals. Pages 30-31, **35**, 36-37, 38-39, 40.
 - 2. Motors and engines supply energy to run machines. Pages 30-31, **35**, 36-37, 38-39, 40.
 - 3. Motors and engines must be started by man. Pages 30-31, **35**, 36-37, 38-39, 40.
 - 4. Motors and engines use electricity or fuel as sources of energy. Pages 30-31, **35**, 36-37, 38-39, 40.

UNIT III: Sun, Wind, and Weather

- A. There are many kinds of weather.
 - 1. Sun, moisture, temperature, and wind are elements of weather. Pages **42-43**, 44, 45, 46, 47, 50-51, 52-53, 54, 55, 56-57, 58, 59, 60.
 - 2. Weather combinations vary. Pages **42-43**, 58, 59, 60.
 - 3. Weather changes may take place rapidly within a given day. Pages **42-43**, 54, 58, 59.
 - 4. Weather changes can often be predicted from the condition of the sky. Pages **42-43**, 58.
- B. The sun appears to rise in the morning, describe an arc overhead, and set in the evening.
 - 1. The apparent movement of the sun divides our day into the common time intervals known as dawn, morning, noon, afternoon, evening, and night. Pages **44**, 45, 46.
 - 2. Shadows are different in length and direction at different times of the day. Pages **44**, 45, 46.
 - 3. The length and position of shadows can be used to tell approximate time. Pages **44**, 45, 46.
- C. The sun gives us light and heat.
 - 1. When we receive no sunlight, it is night. Pages **44**, 47.
 - 2. The amount of light that we receive from the sun depends upon how high the sun is in the sky. Pages **44**, 45, 46.
 - 3. The amount of heat received from the sun varies with the time of year. Pages **50-51**, 52-53, 58, 59, 60.
 - 4. The amount of heat received from the sun varies with the time of day. Pages **46**, 47.
 - 5. During the daytime it is warmer in the direct sunlight than in the shade. Pages **47**, 49.
 - 6. When clouds come between us and the sun, some of the sun's light and heat is cut off. Pages **47**, 60.
- D. Temperature is important in determining what the weather will be and in determining our daily activities.
 - 1. Temperature can be estimated; we use a thermometer to measure it exactly. Pages 46, 47, **48-49**, 50-51, 52-53, 58, 59, 60.

- a. When the liquid in the thermometer goes up, it is hotter. Pages **48-49**, 50-51, 52-53, 59.
- b. When the liquid in the thermometer goes down, it is colder. Pages **48-49**, 50-51, 52-53, 58, 59.
2. Whether clouds bring rain or snow depends upon the temperature. Pages **58**, 59.
3. Snow melts when the temperature rises sufficiently. Page **59**.
4. Rain may freeze and cover the ground with ice when the temperature falls. Page **59**.
5. We use a thermometer in our daily lives. Pages 50-51, **52-53**.
6. Changes in temperature affect human activities. Pages **46**, 50-51, 52-53.
- E. The wind has force.
 1. The wind blows with varying degrees of force. Pages 54, **55**, 56-57, 60.
 2. The force of the wind may be told by the effects it produces. Pages 54, **55**, 56-57, 60.
 3. Man often uses wind force to his advantage. Pages 55, **56-57**, 60.
 4. Wind may be man's enemy. Pages 54, 55, **56-57**, 60.

UNIT IV: Plants

- A. Living things have certain characteristics that distinguish them from non-living things.
 1. All living things grow, reproduce, and die. Pages **62-63**.
 2. Plants are living things. Pages **62-63**.
 3. Animals are living things. Pages **62-63**.
- B. Plants have distinguishing features by which we can tell one plant from another.
 1. The general shape of the flower, the number of petals, and their arrangement and shape are often distinguishing features. Pages **64**, 66-67, 71.
 2. The general shape of the leaves, their types of serration, and their rib arrangement are often distinguishing features. Pages **65**, 66-67, 71.
 3. The color and shape of the seeds and kind of seed container produced are often distinguishing features. Pages **68-69**, 70, **71**, 72.
- C. Plants grow and reproduce their kind.
 1. Most plants that we raise grow from seed. Pages **68-69**, 70, 71, 72, 73, 76-77.
 2. Plants follow a definite pattern and time in growing to maturity. Pages **68-69**, 70, 71, 73.
 3. Seeds are produced from the flowers. Pages **68-69**, 70, 71.
 - a. Seed pods usually open when the seeds are ripe. Pages **68-69**, 70, 71, 72.
 - b. Seeds produce the same kind of plant as the parent. Pages **68-69**, 70, 71, 73.
 4. Seeds are distributed in many natural ways. Pages **68-69**, 70, 71, **72**, 76-77.
 - a. Some seeds are heavy and merely fall to the ground. Pages **68-69**, **72**.
 - b. Some seeds have fluff attached and float in the air. Pages 71, **72**.
 - c. Some seeds are contained in edible fruits and are distributed when man and animals eat the fruit. Pages **71**, **72**.
 - d. Some seeds have stiff sails and ride in the wind. Page **72**.
 - e. Some seeds have hooks and catch rides on moving objects. Pages **72**, 76-77.
- D. Sufficient water and light are necessary for growth.
 1. Seeds need water to germinate. Pages **68-69**, **73**, 76-77.
 2. Plants die if they are deprived of water for too long a time. Pages **73**, 75.
 3. Green plants die if they are deprived of light for too long a time. Pages **68-69**, **74**, 75.



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